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Patent and Trademark Office

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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/298,691 08/31/94 KISH

EXAMINER
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MAINTENANCE	PAPER NUMBER
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B5M1/0131

HEWLETT-PACKARD CO.  
RECORDS MANAGER  
LEGAL DEPT., 2080  
P.O. BOX 10301

PALO ALTO, CA 94303-0890

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

DATE MAILED  
2588

01/31/95

- ☒ This application has been examined ☐ Responsive to communication filed on \_\_\_\_\_ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), \_\_\_\_\_ days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☒ Notice of Draftsman's Patent Drawing Review, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ \_\_\_\_\_

Part II SUMMARY OF ACTION

1. ☒ Claims 14-21 are pending in the application.  
Of the above, claims \_\_\_\_\_ are withdrawn from consideration.
2. ☒ Claims 1-13 + 22-37 have been cancelled.
3. ☐ Claims \_\_\_\_\_ are allowed.
4. ☒ Claims 14-21 are rejected.
5. ☐ Claims \_\_\_\_\_ are objected to.
6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.
7. ☐ This application has been filed with Informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1835 C.D. 11; 453 O.G. 213.
14. ☐ Other

SN # 08/298691

EXAMINER'S ACTION

PTOL-326 (Rev. 2/83)

Art Unit: 2508

The disclosure is objected to because of the following informalities: The specification contains some errors. Examples are below. To be fully responsive to this action, Applicant must make a bona fide attempt to correct any other errors. Page 1, line 29, "generate", page 1, line 36, "p-doped", page 2, line 36, "epitaxially", page 4, line 29, "bonded", are illegible due to copying. Claim 18, line 2, "low", is indefinite as to how much constitutes "low". In other words, there is no recitation of quantity or relative comparison with some other element in the claim. Appropriate correction is required.

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 14-21 are rejected under 35 U.S.C. § 103 as being unpatentable over Fletcher in view of Jokerst et al.

Serial Number: 298,691

-3-

Art Unit: 2508

Fletcher in Fig. 3 discloses an LED with transparent GaP substrate 35 but lacks explicit disclosure of wafer bonding. Jokerst teaches using wafer bonding techniques in integrated light emitting devices to improve semiconductor crystal quality in the resulting structure. In re claim 1, because of Jokerst it would have been obvious to wafer bond substrate 35 to layers 32, 33, 34 in order to improve crystal quality. In re claim 2, layers 32, 33, and 34 are epitaxial layers. In re claims 16 and 21, GaP layer or substrate 36 would also be a candidate for wafer bonding to one of ordinary skill. In re claim 20, layer 33 is an active layer. In re claim 17, the Fig. 3 device is an LED. In re claim 19, Fletcher gives examples of thick substrates. In re claim 18, "low" is indefinite as noted above. Therefore, any electrical connections may be considered "low".

Cited of interest are Ayabe and Blonder for substrates.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. Mintel whose telephone number is (703) 308-4916.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Mintel/lr

January 27, 1995

*William Mintel*  
**WILLIAM MINTEL**  
**PRIMARY EXAMINER**  
**GROUP AII 258**